

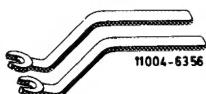
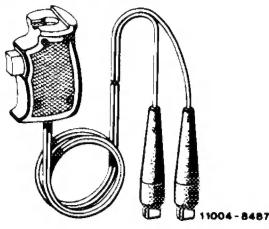
## 05–270 Replacing valve stem seals

Valve clearance	engine cold (approx. 20 °C)	engine hot (60 °C ± 15 °C)
Intake	0.10 <sup>1)</sup>	0.15 <sup>1)</sup>
Exhaust	0.30	0.35

<sup>1)</sup> 0.05 mm greater for steady ambient temperatures below –20 °C.

Tightening torques	Nm	(kpm)
Bolts for cylinder head cover (engine 615)	5	(0.5)
Nuts for cylinder head cover (engines 615, 616, 617)	15	(1.5)

### Special tools

Valve adjusting wrench 14 mm (two)	 11004-6356	615 589 00 01 00
Holding wrench for valve spring cap	 11004-7118	615 589 00 03 00
Feeler gauge holder red	 11004-6364	617 589 00 40 00
Feeler gauges	0.10 mm thick 0.15 mm thick 0.20 mm thick 0.35 mm thick	617 589 00 23 00 617 589 01 23 00 117 589 00 23 00 617 589 03 23 00
Installer for valve stem seals Intake and exhaust	 11004-6191	617 589 00 43 00
Socket 27 mm, 1/2" drive to crank engine	 11004-6193	001 589 65 09 00
Remote starter switch for cranking engine (individual component of compression pressure recorder 001 589 46 21 00)	 11004-8487	001 589 46 21 08

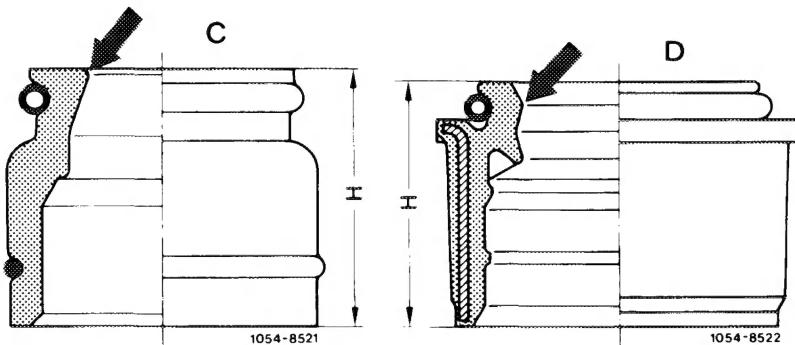
Commercially available tool	
Cylinder leakage tester	e.g. Bosch, EFAW 210 A. SUN, CLT 228

## Note

Different types of valve stem seal are provided for these engines.

The valve stem seal for uprated engines has a lower sealing lip to account for greater valve lift  
(D, arrow);

C Valve stem seal, H = 13.7 mm high  
D Valve stem seal, H = 13.0 mm high

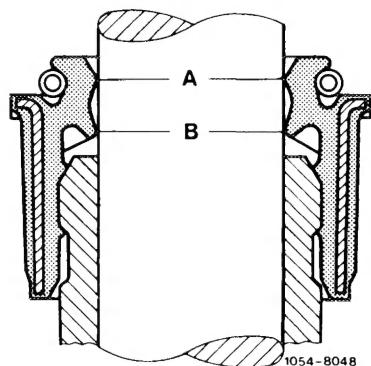


Thanks to this measure the retaining groove on the valve stem does not pass below sealing lip when valve opens; for this would allow oil to reach combustion chamber.

Besides, it is shorter and is shaped differently.

The valve stem seal not only has oil sealing lip (A) but also a gastight lip (B).

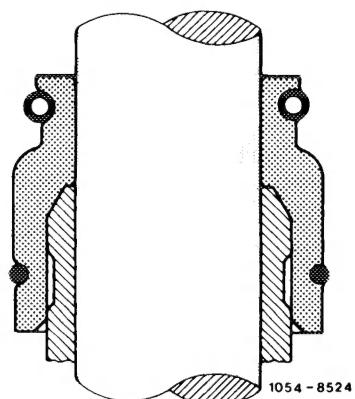
A Oil sealing lip  
B Gastight lip



The intake and exhaust valve stem seals are identical. The higher valve stem seal (C) must not be used in up-rated engines.

In contrast, the shorter valve stem seal (D) can be fitted in all engine models.

In future, the Esslingen-Mettingen spare parts division will supply only the shorter valve stem seal (D).



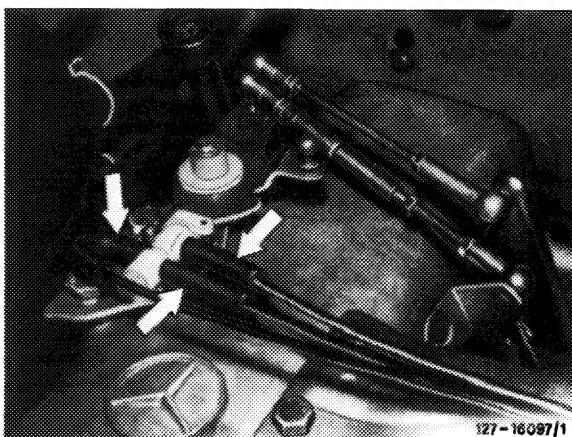
## Replacement

- 1 Remove cylinder head cover.

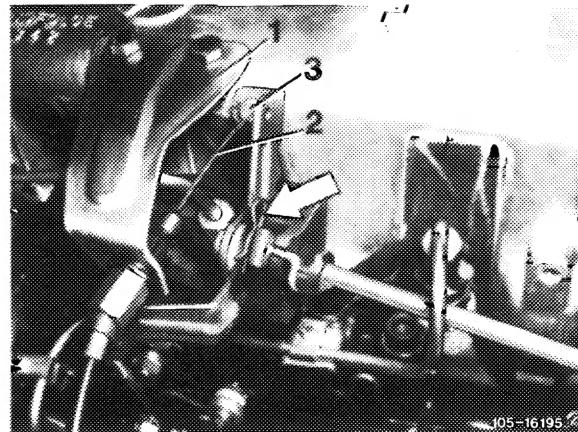
On vehicles with automatic transmissions and vacuum-controlled modulating pressure, additionally disconnect vacuum line at switch-over valve.

### Caution:

Be sure not to cross vacuum lines. The pipe unions and vacuum lines are color coded.



On engines with longitudinal control spindles, detach all control rods. Withdraw retainer (arrow) and force longitudinal control spindle in aft direction. Unscrew bracket (1) and unclip idle control cable (2) with plastic sleeve (3).



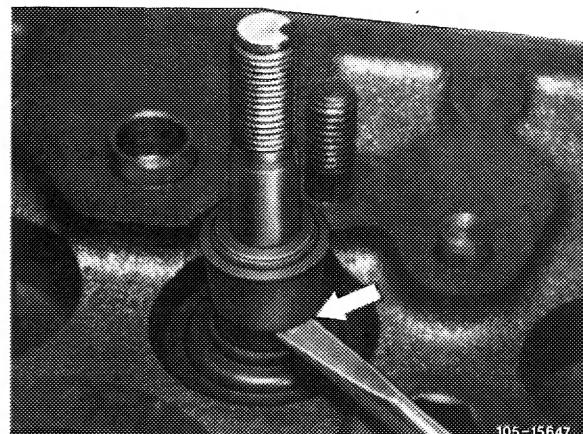
2 Remove rocker arms and rocker arm brackets (05-235).

3 Remove valve springs (05-250).

4 Force off valve stem seals with screwdriver, or pull off using pliers.

**Caution:**

Be sure not to damage valve stem or valve guide.

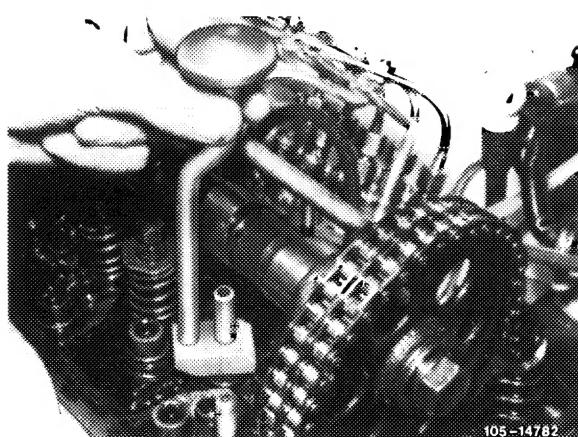


5 Oil new valve seals and fit using the drift.

For this purpose, be sure to position installing sleeve on valve stem.

6 Fit valve springs (05-250).

7 Fit rocker arms (05-235).



8 Adjust valve clearance (05-210).

9 Fit cylinder head cover.

